DOCUMENT RESUME

ED 051 608 EC 032 579

AUTHOR	Bruch, Catherine B.
TITLE	Teaching Gifted Children Social Sciences in Grades Four Through Six.
INSTITUTION	California State Dept. of Education, Sacramento. Div. of Special Education.
SPONS AGENCY	Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE	71
NOTE	40p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Creative Thinking, *Educational Objectives, *Exceptional Child Education, *Gifted, *Intermediate Grades, *Social Sciences
IDENTIFIERS	California

ABSTRACT

Addressed to those who teach social sciences to gifted students in grades 4-6, the booklet elaborates upon suggestions made in the proposed framework on the social sciences for California public schools. Concepts, generalizations and themes of the social sciences are examined as they relate to principles of teaching social science to gifted children. Emphasis is upon productive thinking, creative thinking, problem solving, and a blending of cognitive-affective skills. The concern is expressed that, rather than merely learning simple inquiry training, gifted students experience productive thinking through behaving like social scientists and that they conceive of themselves as problem-solving thinkers. Social science skills are examined (conceptual models, behavioral skills, evaluative and creative skills). Higher intellectual skills are considered in a chapter discussing several theoretical frameworks for examining thinking abilities. Creative persons and the creative process are briefly discussed in relation to teacher strategies. Thoughts on the contribution of the social sciences to the development of the gifted child's potential conclude the booklet. (Author/KW)

ED051608

4-6

SOCIAL SCIENCES

Teaching Gifted Children Social Sciences in Grades Four Through Six

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to: EC SO

In our judgement, this document is also of interest to the clearinghouses noted to the right. Indexing should reflect their special points of view.

CALIFORNIA STATE DEPARTMENT OF EDUCATION
Wilson Riles – Superintendent of Public Instruction Sacramento, 1971

EC032579

ED051608

Teaching Gifted Children Social Sciences in Grades Four Through Six

Prepared for the
DIVISION OF SPECIAL EDUCATION
California State Department of Education

By
CATHERINE B. BRUCH
Associate Professor, Educational Psychology
Coordinator, Training Program for Personnel for the Gifted
University of Georgia

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED026108

This publication, which was funded under provisions of the Elementary and Secondary Education Act, Title V, was edited and prepared for photo-offset production by the Bureau of Publications of the California State Department of Education, and published by the Department, 721 Capitol Mall, Sacramento, California 95814.

Printed by the Office of State Printing

1971

FOREWORD

"The vocation of every man and woman is to serve other people," Tolstoi once wrote. That statement has special meaning for the teacher, for he serves the young, who are entrusted to him when they are most impressionable. His influence on them will be as great as his service.

The mentally gifted need a large share of the teacher's help. It is true that they comprise only a small part of the student population in California and can move successfully through an ordinary curriculum with ease. But the gifted will have an influence on our state and nation far beyond their numbers; many of them will, one day, be among the movers and shakers of our society. To ignore their special needs to is to frustrate them. Frustration, in turn, can lead them away from constructive goals, and we will all be the losers for it.

The teacher, then, must pay attention to the mentally gifted. He must serve them by shaping the curriculum to their needs. By varying the manner in which a subject is taught and the rate at which it is taught, the teacher of the mentally gifted can win their interest.

To assist the teacher of the mentally gifted, the State Department of Education has directed and coordinated a project to develop appropriate curriculum materials. This publication, one in a series, contains important concepts and suggestions for the use of teachers of the mentally gifted. It is our hope that these teachers will find the publication useful in the important work entrusted to them.

Wilson Riles

Superintendent of Public Instruction

PREFACE

This publication is designed to assist those who teach social sciences to gifted pupils in grades four through six. It elaborates on and extends certain suggestions contained in the proposed framework on the social sciences for California public schools. The particular concern of this publication, however, is that gifted pupils learn much more than simple inquiry or other training, that they experience productive thinking through behaving like social scientists, and that they conceive of themselves as problem-solving thinkers.

Experts in the social sciences have long been concerned with the development of an overall conceptual structure that is suitable for all learners. The results of their attempts at synthesis vary because the structure of a particular social science does not necessarily fit within the structure of another social science. The emphasis in this publication on productive thinking, creative thinking, problem solving, and a blending of the cognitive-affective skills redefines the curriculum for those gifted pupils who as future citizens will undoubtedly be called upon to resolve some of the world's problems.

LESLIE BRINEGAR
Associate Superintendent of Public Instruction; and Chief, Division of Special Education

JOSEPH P. RICE, JR.
Chief, Bureau for Mentally Exceptional Children; and Project Director

PAUL D. PLOWMAN
Consultant in Education of the Mentally Gifted; and Principal Project Coordinator

IRVING SATO
Consultant in Education of the Mentally Gifted; and Associate Project Coordinator

CONTENTS

	Page
Foreword	iii
Preface	v
Chapter 1 Crucial Issues	1
Areas of Commonality	1
Value of Facts	2
Concepts and Generalizations	3
Human Interactions	4
Uniqueness of the Gifted Child	5
Importance of Framework	5
Understanding of Social Sciences	7
Principles of Social Sciences	8
Chapter 2 Social Science Skills	10
Conceptual Models	10
Behavioral Skills	12
Evaluative and Creative Skills	12
Individual Differences	13
Chapter 3 Higher Intellectual Skills	15
Developmental Sequence	15
"Structure of Intellect" Model	16
Individual Differences	19
Hierarchical Approaches	20
Individual Profiles	23
Chapter 4 Creativity	24
Creative Persons	24
Creative Process	25
Creative Problem Solving	26
Teacher Strategies	26
Individual Differences	28
Chapter 5 Development of Potential	29
Meaning of Development	29
Contribution of Social Sciences	29
Selected References	31

Chapter 1

Crucial Issues

Issues within the social science disciplines are problems associated with any changes attempted in new curricular models. There are as well practical difficulties in implementing a thinking-process orientation in the social sciences. At a time when changes in education for the gifted need to be accomplished rapidly, the changes that involve process orientations rather than product orientations and more flexible complex teaching procedures rather than stereotyped and rote-memory procedures will also involve essential changes in the attitudes of teachers and other staff members.

Any of these changes is formidable in itself, but attitude changes are the most difficult to accomplish and take the most time. If social scientists in education do nothing to intervene in the existing educational mechanisms, it is quite possible that some creative programming aimed at preservice and inservice education on a statewide or nationwide scale may be needed to effect these changes in educating the gifted.

Areas of Commonality

Although the many disciplines within the social sciences are very different, it is necessary to find the basic areas of commonality. Some experts in each field who perceive of the social sciences as global may prefer to select a central, overriding theme. Still others in the field suggest various ways for synthesizing the social science disciplines; they prefer subject-area content ranging from simple to complex and from concrete to abstract or theoretical.

For gifted students in the intermediate grades, a bridge between the more concrete subjects and the theoretical subjects would seem to be appropriate. That is, the gifted student who is ready to do abstract thinking may be able to deal with the philosophical aspects of history or of the behavioral sciences. He may also be able to manage the theoretical requirements for higher-level thinking in such subjects as ethics, economics, anthropology, government, or sociology. The highly gifted student, particularly the verbally fluent, may be able to comprehend and talk about these subjects in highly abstract ways.

Other gifted students whose intellectual talents lie in the concrete area (and particularly fourth graders who have poor writing skill) may be just beginning to function on the simpler levels of abstraction. We would, therefore, not force theoretical content upon these latter intermediate-grade gifted children but should have such content available should they be ready to use it. A broad framework that would encompass all of the social sciences may seem to threaten the individuality of some particular disciplines within the group. Should this be the case, it would present another major issue in need of resolution. Emphasis, however, on creative problem solving and a process orientation approach in the social sciences will ease this latter problem in part and will also ward off the discontinuity of the "fourth-grade slump" in creative thinking.

The framework on the social sciences for California public schools focuses on the essential characteristics of men and human society in the elementary grades and on its extensions to economic and political systems, historical integration, and decision making in the secondary grades. One would expect, therefore, that some gifted students would begin early to reach on their own for the content and concepts dealt with in the secondary grades. Flexible and innovative use of the California framework is especially important as a basis for teaching gifted students.

Value of Facts

As in any other discipline, facts in the social sciences are of value only as they are related to the development of meaningful concepts and generalizations. Despite the gifted child's ability to accumulate facts, to remember fragmented and miscellaneous bits and pieces of information, the gathering of facts for their own sake should be discouraged, if only because fragmented facts are in the long run less retrievable from memory. The gifted child in intermediate social science classes should be encouraged to seek interrelationships, to develop rational patterns, and to cross disciplinary lines in his search for more meaningful and more intellectually stimulating information.

In the social sciences information is rapidly changing. What may be a valid bit of information today may be obsolete tomorrow. Within the intermediate grades the gifted child should be aware of this flexible and ever-changing quality of factual information in the social sciences. He should begin to evaluate the validity of facts and information in terms of the requirements of a particular situation. As situations change, he should be able to adapt to the need for finding more relevant facts and for discovering information that fits the particular purposes of an inquiry in the social sciences. Examination of discrepancies between apparent facts given in one source of

information and those given in another source should further the student's inquiry into the validity of the information. Discrepancies in information can also stimulate curiosity and may lead to a depth of inquiry that will greatly enrich the student's conceptual system.

Concepts and Generalizations

Writers in the social sciences agree on neither the definition nor the uses of concepts and generalizations. The unifying theme in most reports on concepts or generalizations is that of man. Concepts of man are centered on themes such as Hanna's study of men living in society or Bruner's *Man: A Course of Study*, which treats of man as a species, the forces that have shaped and continue to shape humanity, and man in the society.[1]

Other models suggest that studies be based on the expanding environments of men and on human interactions. For example, Hanna assigns statements about man's engaging in basic human activity to basic areas of human living, including (1) protecting and conserving life and resources; (2) producing and exchanging goods and services; (3) expressing aesthetic and spiritual needs; and (4) educating, organizing, and governing.[2]

A report of the California Central Committee on Social Studies lists 18 generalizations for the social sciences. A synthesis of these 18 generalizations is further expressed in terms of society, culture, environment, values, change, continuity, interdependence, personal development, and democratic living.[3]

From another point of view, work at the Social Studies Curriculum Center at Syracuse University has produced a framework of 18 major concepts for the social sciences and five qualitative concepts descriptive of values. The 18 major concepts are listed briefly as follows:

1. Sovereignty of the nation-state in the community of nations
2. Conflict – its origin, expression, and resolution
3. The industrialization-urbanization syndrome
4. Secularization
5. Compromise and adjustment
6. Comparative advantage

---

[1]See Paul R. Hanna, "Revising the Social Studies: What is Needed," *Social Education*, XXVII (1963), 190-96; see also Jerome S. Bruner, *Man: A Course of Study*. Cambridge, Mass.: Educational Development Center, Social Studies Curriculum Program, 1968.

[2]See Hanna, *op. cit.*

[3]See Byron G. Massialas and Andreas M. Kazamias. *Crucial Issues in the Teaching of Social Studies.* Englewood Cliffs. N.J.: Prentice-Hall, Inc., 1964, pp. 61-63.

7. Power
8. Morality and choice
9. Scarcity
10. Input and output (Input concerns productive resources furnished by persons producing a product. Output refers to all the products produced.)
11. Saving
12. The modified market economy
13. Habitat and its significance
14. Culture
15. Institution
16. Social control
17. Social change
18. Interaction

The Syracuse essential-value concepts are the following:

- Dignity of man
- Empathy
- Loyalty
- Government by consent of the governed
- Freedom and equality[4]

Further concepts of methods and techniques from the Syracuse studies are discussed in Chapter II.

Human Interactions

The theme that underlies most social sciences is that of human interactions. A specific concern is that people learn to behave like social scientists through performing in social science investigations. Whatever the subject discipline of the social sciences may be – geography, history, political science, economics, anthropology, psychology, sociology, philosophy – man's behavior is the central generalization. Gifted students in the intermediate grades can begin to think as social scientists and discuss humanistic values. They can develop more insightful awarenesses of how human beings interact and how they themselves interact with others. Their social sensitivity to implied meanings from others may be highly developed even though they are only beginning to question their own values in dealing with others.

A corollary to their social institution is their psychological awareness. Some gifted children in the intermediate grades already ask themselves the basic question "Who am I?" Group discussions

[4]See Roy A. Price, Gerald R. Smith, and Warren L. Hickman, *Major Concepts for the Social Studies.* Syracuse, N.Y.: The Social Studies Curriculum Center, Syracuse University, 1965.

serve gifted students in many ways, and the psychology of the self interacting with others is an appropriate area of study. The preceding generalizations are themes and topics that gifted students can expand. A major consideration of a teacher's decision to consider specific unit themes for the gifted is whether the theme is related to the central concepts that structure the social sciences.

Uniqueness of the Gifted Child

Since each gifted child is possessed of greatly differing intellectual and social-emotional patterns, knowledge of his uniqueness is necessary before any program is developed for his particular concerns.

For example, the class may be considering questions about how geographic setting has affected the development of a certain locale. One youngster may wish to pursue his own question: "If I were a visitor from the moon, how would I decide to develop that particular locale?" Teacher and children would stretch their own social science frameworks to compare the concepts from the social sciences and from other disciplines. But if the youngster is in need of knowledge about personality differences, his topic might be concerned with developing a race of men for the moon.

Gifted students in these grades can encompass multiple conceptual frameworks to build a richer background of knowledge. That is, the average child masters concepts essential to a generalization, whereas the gifted child in the intermediate grades can develop a richer background of facts to support the concepts and corollary concepts supporting a generalization. While they acquire richer concepts and generalizations, they also develop their (1) potential for synthesis; (2) perception of relationships between concepts and generalizations; and (3) discernment of the interrelatedness of the various subject-area disciplines. Thus, they are led into tangential or unexpected areas.

That these children conceptualize in ways that appear to the teacher to be intuitive is possibly due to their ability to develop internal associations from individual cognitive experiences. When this occurs, the teacher should consider such intuitive jumps as valid as the comments of gifted students who offer prosaic concepts. If an idea is unsupported in discussion, the determination of the validity of the idea can become a part of unique learning. These experiences best occur in social science analysis procedures.

Importance of Framework

The framework reported by the California Statewide Social Sciences Study Committee is a reference point from which to extend

concepts and generalizations for gifted children. Topics, inquiry processes, and concepts specified by the study committee form bases from which exploratory expeditions may be conceived for and by the gifted. Thus, special provisions for educating the gifted in rural locales or in school districts where there are small numbers of gifted students can be closely allied to planning for other children. The differential plan for gifted children is to be related to an overall plan for study in the social sciences.

Inquiry Processes

Where the California social sciences framework specifies particular inquiry processes for use in suggested topics, these processes, in addition to other processes, are appropriate for the gifted. The higher intellectual processes described in the general framework include logical thought operations based on rational and decision-making modes. Such modes of inquiry are only part of the learning for the gifted in social sciences. Beyond the logical and evaluative processes, the gifted need especially to become involved in creative problem solving, in thinking beyond the given in a situation, and in formulating hypotheses for testing through behavioral science approaches. Regular practice in creative problem solving is essential to the development of the creative leaders of tomorrow.

The reader should consider how one might extend a topic given in the general framework; for example, the topic "How Is Man Like No Other Man?" Concepts are listed as individuality or individualism; values; world view (myth, religion, ideology); and expression creativity, including media of expression. Inquiry processes, given primarily as integrative, include observation, classification, definition, comparison, holistic integration, and communication.

In this particular topic the idea of creativity is considered as creative and artistic expression indicating cultural values and creative products. One may extend both the concepts and the inquiry processes by focusing on a parody of the initial question: How is creative man like no other man? The concepts of creativity may be extended to include creativity in the natural and physical sciences, in the social sciences, in various forms of the arts, and in the activities of everyday life. Humanistic values may be considered. Generalizations that apply to creative men in many cultures may be derived. As for the inquiry processes, creative problem solving is to be both experienced and studied.

Other Topics

Further topics for the gifted that may evolve as elaborations upon the "creative man" topic are the following:

- How do creative men and women view the world?
- How does man solve problems?
- What are major problems in the world today?
- What does it mean for students to be creative?
- What do you hypothesize may be the state of the nation (or the world) in ten years?

To aid children in researching such topics, teachers themselves need to become involved in creative problem-solving studies. Extensions of the usual topic and suggested elaborative topics designed for gifted students have been chosen as examples because of the importance of their content for gifted. Other related concepts of equal value are "man the thinker," "problem-solving man," "man and his emotions," "man and the arts," "paradoxical man," "man in the future," "man the decision maker," "man in his cultures and subcultures," and so forth.

The basic distinction of the gifted child's study of social sciences is that he uses the rational-logical processes as well as processes involving creativity so that he delves into the unknown, experiments, hypothesizes, tests in new ways, and evaluates what he himself does in the process of social science investigations.

Understanding of Social Sciences

Massialas and Cox suggest that one of the three goals for the teaching of the social sciences is the development of an understanding of the structure of the social sciences and an appreciation of the interrelatedness of all knowledge pertaining to the social sciences.[5] A major understanding, agreed to by most experts, is that students understand the processes of inquiry consistent with methods and strategies used by social scientists. Problem-solving and decision-making understandings are basic in the application to human behavior of knowledge gained in the social sciences.

Some social science educators view the social sciences as instruction in process rather than mastery of subject matter. Engle describes the problem-solving process as emphasizing the function of synthesis and imagination as ideas from related sources are tested in broad areas of social experience. The goal of the process is to develop and refine continually the ability to solve problems and to arrive at answers to the perplexing circumstances confronting us.[6] This

---

[5]See Byron G. Massialas and Benjamin C. Cox, *Inquiry in Social Studies.* New York: McGraw-Hill Book Company, 1966.

[6]See Shirley H. Engle, "Objectives of the Social Studies," in *New Challenges in the Social Studies.* Edited by Byron G. Massialas and Frederick Smith. Belmont, Calif.: Wadsworth Publishing Company, 1965.

philosophical orientation focuses on the need for understandings that the gifted child should attain in the social sciences.

At the intermediate levels, then, children need to be taught the processes of evaluation, transformation, and deduction-induction of logic that lead to implications thinking. Gifted children need to accomplish more than mere mastery learning of the major ideas and concepts within the disciplines. Their understandings need to be more comprehensive, their awarenesses of the total structures of the disciplines more complete, and their interdisciplinary syntheses more apparent for gifted children than for average children.

An additional understanding found in gifted children has to do with their sensitivity in human interactions. Understandings having to do with values and valuing, philosophical and ethical issues, and personal humanitarian responsibilities are often found in gifted children in the intermediate grades. Such understandings are enhanced and extended when practical or vicarious problem-solving episodes are interlaced with other social science content in daily classroom living.

Principles of Social Sciences

Each social science discipline has its own set of principles. Underlying principles stem from the nature, content, and method of the discipline. An interdisciplinary approach suggests that the structure of social sciences be focused on the study of man as previously discussed. If the study of man's past is used (history, philosophy, anthropology, and archaeology), then principles for each remain relatively static. If the fluidity of man in today's world is the basis of study (psychology, sociology, social psychology, and social anthropology), then one major principle is that the structure of these social sciences is flexible.

Other principles related to the teaching of gifted students need to be considered. These principles pertain to maximizing the individuality of the gifted and thus demand flexibility and changeability in the principles themselves. Rules, then, are seen not so much as absolute but as relative and modifiable. Principles that may be used in teaching social sciences to gifted students in intermediate grades are the following:

1. Topics and subjects pertaining to the social sciences taught at the junior high school level should be considered applicable to gifted students in the intermediate grades who are early maturers.
2. Teacher strategies should lead to increasing the independence of the thinking of gifted students.
3. Strategies should be centered on creative, logical, and critical thinking.

4. Students should engage in challenges presented through multiple materials and multiple media.

5. Complexity rather than simplicity should be the rule for the gifted who show high abstract ability, and, conversely, simplicity rather than complexity should be made the basis of presentation for the gifted whose skills lie in the artistic, the mechanical, the mathematical, or the concrete.

6. The gifted should be expected to function under less teacher and text structure and under more self-structured inquiry.

7. Opportunities should be provided wherein gifted students combine and synthesize information and ideas within their own frameworks into their own products. That is, value judgments must be their own.

8. The classroom climate should provide the gifted freedom to digress from the explored and predicted aspects of problems stated or implied by teacher, content, materials, or class activities.

9. Teachers should plan deliberately to use unresolved, ambiguous, open-ended situations; problems and questions should stimulate further exploration, curiosity, problem solving, multiple patterns of research, and variety in students' responses.

10. Teachers should individualize their teaching strategies and choices of content to fit the conceptual levels of their students. (There may be greater differences among gifted children as to abstract abilities than there are among average children.)

11. Teacher strategies in the social sciences for the gifted should take into consideration the preferred styles of thinking of their students. At the same time exposure to other styles should be planned. That is, a child who is overly logical and perhaps grounded in the security of his "facts" may be encouraged to do creative thinking; the extremely creative thinker who is sometimes prone to come up with peculiar ideas can be helped to follow through with testing his own ideas. In either case the teacher should be well prepared (through inservice education) with understandings of the thinking styles of the children and the relationship of these styles to needed practice in different kinds of thinking, within the context of the social sciences.

Chapter 2

Social Science Skills

In each of the social science disciplines, it is important for students to learn to think and behave like social scientists. That is, they should experience as does an historian, a geographer, an anthropologist, a philosopher, a psychologist, or a sociologist. Gifted students should learn to employ first the vocabulary, then the practical tools, and finally the thinking skills which are used by the scientist in any one discipline.

The behavioral sciences (psychology and sociology) emphasize interpersonal skills. Planned units to teach affective skills need to be developed if affective skills are to be learned. Behavioral scientists also are concerned with valuing. Before children can value, they must be taught the preceding cognitive skills that lead to valuing, such as cognition of relations, cognition of systems, and evaluation skills. This learning makes possible the blending of cognitive and affective dimensions. Some of the other social sciences deal more with methodological tools and skills than do the behavioral sciences.

Although some students have power for logical thinking that helps them to analyze some interpersonal relationships they have experienced, even on incidental levels, many of them lack the emotional maturity to apply their understanding to their own behaviors. For example, a ten-year-old with a mental age of fifteen can hardly be expected to judge behavior with the same experience as a fifteen-year-old. He can be assisted through study in the behavioral sciences to begin to develop more realistic understanding of himself or of his actions in relation to those of others.

Subject-matter skills in the social sciences are more easily defined when they do not involve the nebulous quality of the values dimensions. Some of these skills will be described further according to several of the social science disciplines, and descriptions will also be given concerning skills in thinking.

Conceptual Models

It was suggested earlier that the students begin to operate as social scientists do and that they operate under the models of search verifiability and invention used by scientists in their quest for

knowledge. Several models are available from which a teacher may operate. All of these models pertain to the thinking processes involved in the social sciences; the thinking processes thus become the skills for the social sciences. The corollary processes of interpersonal skills required in order to perform effectively as a social scientist have already been discussed.

Methods and Strategies

Basic models appear to have to do with methods and strategies for engaging in social inquiry or problem solving. Problem-solving approaches may be viewed in many ways, but only one is given here sequentially in the following example:

1. Statement of the problem
2. Hypothesis making and selection of courses of action
3. Discussion of the problem
4. Formulation of conclusions

Imagination and Analysis

As a model for social inquiry that employs imagination and the analytic skills, tasks are suggested for the gifted as follows:

- Invention of a mystery or identification of a question
- Formulation of ideas and clarification of questions
- Translation of the question into more general questions for direction of the inquiry
- Translation of the general questions into particular questions focusing attention upon evidence
- Cross-examination of the evidence
- Conclusion with reports on what has been done, seen, heard, or discovered[1]

Critical Skills

Critical thinking skills are frequently discussed in the literature of social science inquiry. Among the skills identified by social scientists have been (1) constructing an hypothesis; (2) defining its terms; (3) proving its assumptions; (4) tracing its logical implications; (5) testing the hypothesis; and (6) generalizing from it. Other social scientists consider critical thinking skills as being generalized skills in understanding, hypothesizing, and stating problems; in exploring; and in concluding.

---

[1]See H. Millard Clements, William R. Fiedler, and B. Robert Tabachnik, *Social Study: Inquiry in Elementary Classrooms.* Indianapolis: Bobbs-Merrill Company, Inc., 1966.

Critical thinking skills can also be extended to include critical listening abilities: recognition of the speaker's bias; recognition of his confidence; differentiation of fact and opinions; recognition of inferences; and differentiation of reportive and emotive language. All of these skills apply to the thinking processes used by social scientists and other scientists, by English teachers and foreign language teachers, and by others. Some prefer to look upon critical thinking as a fundamental prerequisite to any thinking of a higher order.

Synthesis

A synthesis of the conceptual methods employed by social scientists is found in the work done at the Social Sciences Curriculum Center at Syracuse University. Methods developed there follow the broader aspects of historical method and point of view, the geographical approach, and causation. Particular techniques and aspects of the methods are given as follows:

- Observation, classification, and measurement
- Analysis and synthesis
- Questions and answers
- Objectivity
- Skepticism
- Interpretation
- Evaluation
- Evidence

These ideas synthesize the methodology of the social sciences.[2]

Behavioral Skills

The behavioral skills are important for all children, but since gifted children frequently show leadership earlier than other children, any understanding of human interpersonal relations and particular skills for relating to others in their class should be developed. Gifted children begin to form humanitarian values relatively early. They are also aware of moral responsibilities to society much earlier than other children. A classroom climate that fosters behavioral skills in the gifted will strengthen their awareness of interpersonal relationships, their awareness of their own sense of worth, and their natural tendencies toward humanistic interests.

Evaluative and Creative Skills

Social science skills are generally divided into two basic kinds of thinking, the evaluative and the creative. In the evaluative-analytic

---

[2]See Roy A. Price et al., *op. cit.*

areas, the thinking processes are rational, follow rules of logical thinking, and meet, qualitatively, some form of consensual validation. Reasoning may be relatively passive, whereby the logic of another person is merely followed, or it may be active, whereby the student produces his own logic scheme.

Creative thinking, on the other hand, is usually an active process. Even the period of "incubation" follows thought processing. The student is challenged in the social sciences to resolve problems, to meet complex situations, to cope with formulation of solutions, and, sometimes, to produce where there was nothing before.

The gifted child needs a great deal of practice in evaluative-analytic and creative thinking. His teacher will need to find time in the schedule for such experiences. In the real world of the schoolroom, this situation is possible only when administrators, parents, and teachers recognize that programming such skills requires that lesser or more practiced skills be eliminated. By practicing such thinking skills, the gifted child can see himself as a productive thinker. It is possible, moreover, that the longer he waits to achieve such practice, the more difficult it may be for him to learn to think actively rather than passively. In the process of learning to behave as an historian, a geographer, an anthropologist, a philosopher, a psychologist, or a sociologist, the gifted child's participation in skills described here should lead to his becoming productive and contributive.

The specific social science tools have been omitted from this section because most gifted children will already have become proficient in reading and interpreting maps, designing information in graphic ways, developing skills related to time and to measurement of space, reading for information, observing, organizing information through notetaking and outlining, and so forth.

Individual Differences

One should not be misled into believing that all gifted children will profit equally from an emphasis on thinking and behaving rather than on more finite operational skills. Within the intermediate years individual differences among gifted children vary greatly; there are developmental differences, sex differences, and learning-style differences.

Children who have experienced only very concrete levels of thinking before and whose prior school patterns emphasized concrete skills rather than thinking processes have need for gradual introduction to productive thinking processes. Their need for structure may be greater than the need of other children whose personal

independence, level of abstract thinking, or home or cultural background predispose them to readiness to behave as behavioral scientists. Teachers must modify their strategies and teaching styles and adapt them to the individual styles and the uniqueness of gifted students in their classrooms.

Information about individual differences comes from subjective observation by teachers, but measured differences and uniqueness should be included in the identifying data that come from guidance personnel.

Chapter 3

Higher Intellectual Skills

In this chapter several theoretical frameworks for examining thinking abilities are discussed. Some of the theories are based on hierarchical or developmental schemes; other theories, notably that of Guilford's "Structure of Intellect" model, describe performing intellectual abilities. The theories parallel two prime notions that differentiate gifted students – a more rapid rate of ability development in comparison with some expectant normative developmental rate and a more complex involvement of many kinds of abilities through which gifted students derive a greater breadth of synthesis.

Developmental Sequence

It is not enough to view the gifted child of the intermediate grades as being in developmental transition between concrete operations and formal operations in the Piaget scheme. For gifted children formal operations may involve only a simple stage or two succeeding stages of higher levels of abstraction, usually developed during adolescence. Kenneth Lovell of the University of Leeds, England, states that these highest levels of abstraction in the social sciences are completed at a later average age than in other fields.[1] An adolescent usually reaches the highest or third stage within formal operations at about seventeen and one-half. If the initial stage of formal operations is acquired at approximately twelve or thirteen, then the approximate ages at which gifted children will acquire levels two and three of abstract thinking can only be estimated.

Intermediate-grade students with mental ages higher than thirteen might well have accomplished not only stage one, the simplest level of abstract thinking in formal operations, but perhaps stage two or stage three. A very highly gifted child of ten might have a mental age of approximately seventeen and one-half, an age suitable for stage three. (Stage three in abstraction can be described as having a concept about a concept about a concept.) Thus, a highly gifted child in the intermediate grades might be considered to be

[1]See his address to the International Conference on Piaget. Monterey, Calif.: California Test Bureau, 1969.

"air-borne" as to his ability to think abstractly and to discuss relatively difficult theoretical matters. However, if experience is the necessary component for growth through each stage, then we do the ten-year-old highly gifted child a disservice to expect of him the thinking of the more experienced young person of seventeen and one-half.

If one tries to relate the concept of the "spiral curriculum" (based to some extent on Piagetian theory as interpreted by persons such as Jerome Bruner) to this ever-advancing complexity and depth of thinking in the gifted, the picture might be one of a broader spiral circling the expected normal spiral approach. That is, as the intermediate gifted child progresses through the usual concepts expected to be mastered, he can be accelerated ahead of the usual conceptual development to partake of depth and richness in the concepts as they are developed. One can also expect the gifted student in the intermediate grades who possesses a high level of abstraction and a rich cognitive structure to exhibit an early awareness of relationships between disciplines and to point out these relationships often.

"Structure of Intellect" Model

Perhaps the most beneficial model in recent years for the consideration of the varieties of abilities one might have is the "Structure of Intellect" model, developed by J. P. Guilford to present in a single system a theory on the organization of the various components of the intellect. In his model Guilford postulates as many as 120 separate abilities. Since these abilities do not customarily operate in isolation, an understanding of the conceptual framework of the model (not necessarily an understanding of each separate ability) will be all that is needed for educators as a basis for application of the model.

Description

The "Structure of Intellect" Model (SI) is a three-dimensional model visually representing classification of the various intellectual factors into one of three major headings – operations, contents, and products. Each dimension of the model demonstrates the several modes of variation involved in the primary intellectual categories. The operations involved are cognition, memory, divergent production, convergent production, and evaluation. The four kinds of content are figural, including visual, auditory, and kinesthetic elements; symbolic; semantic; and behavioral. The products dimension is composed of units, classes, relations, systems, trans-

formations, and implications. The reader who wishes for detailed descriptions of the SI model is referred to the literature for descriptions presented in many sources by J. P. Guilford, and to Meeker's book, written especially for teachers and psychologists. [2]

Operations

Thinking operations as described by Guilford do not necessarily have developmental connotations, but one might infer that cognition and memory are the basic or less complex elements whereas the productive-thinking (either divergent or convergent) and evaluative operations require more complex intellectual skills. One would assume, therefore, that focus of the SI model for the gifted would be upon the logical or convergent productions, divergent or creative productions, and evaluations; and for many, this focus would be so. But we must never sell short the gifted children who have prodigious memories or who "comprehend" anything new immediately. They may not be interested in excelling in the other abilities, and deference needs to be given, therefore, to their individual styles.

Contents

As to the content areas of the Guilford model, each different kind of content seems applicable to social sciences, but in different ways at different times. For example, the figural content abilities may each be important for development as related to several other abilities and to behavioral content. Visual figural abilities would be necessary for map reading and for graphic skills. Auditory abilities would be valuable in participation in discussions. A behavioral scientist operates not only with behavioral content in dealing with people but with content that has much to do with his ability to attend to what he hears. The figural kinesthetic abilities may be assumed to be relative to tactile sensitivities and perhaps to the sensitivity a person has to his spatial surroundings. A social scientist must be able not only to "read" behavioral cues but also to be kinesthetically aware of body gestures and their importance in communication. In history and anthropology the figural vestiges of a civilization are paramount for understanding.

Symbolic content is important to the social scientist who deals with numerical concepts. Semantic content is vastly important to

---

[2]See J. P. Guilford and P. R. Merrifield, *The Structure of Intellect Model: Its Uses and Implications.* Los Angeles: University of Southern California, 1960. See also J. P. Guilford, *The Nature of Human Intelligence.* New York: McGraw-Hill Book Company, 1967. See also Mary N. Meeker, *The SOI: Its Interpretation and Use.* Columbus, Ohio: Charles E. Merrill Publishing Company, 1969.

him since ideas must be expressed in words. And behavioral content is of prime importance to the social scientist in that he must be aware not only of the interpersonal relationships of others but also of himself as he interacts with other people.

It may be inferred from the preceding discussion that if gifted children are to behave in their social science learning in a way in which the experiences will be valuable to them, all content dimensions of the Guilford model should be involved in the children's curricular experiences. In symbolic content, however, teachers may expect a less complex level of abstraction in the youngest children or in the children with the lower mental ages of the gifted group.

Products

Guilford's products may be somewhat hierarchically arranged. That is, transitions from units to classes to relations to systems appear to be according to an increasing level of complexity. Transformations products, or the abilities to adapt and change information, may relate to similar concepts in the Piagetian scheme that have to do with understanding changes of information or form. But since these changes are often comprehended prior to the formal operations stage in Piaget, one would expect that most gifted children in the intermediate grades could perform transformations if encouraged to do so.

Implications products, or the abilities to go beyond the information given, appear necessary to the formal operation of hypothesizing, or operating in the hypothetical mode, a particular skill of social scientists. The seeking of implications for further testing is an especially important activity for the gifted in social sciences. Hypothesis making and hypothesis testing skills as research procedures in the social sciences should be part of the social science curriculum for gifted students. Torrance's studies on teaching research to gifted children in the intermediate grades are valuable here.[3]

Diagnostic Analysis

One of the outstanding implications of the Guilford model is its potential for diagnostic analysis. Analysis of classroom discussion according to the thinking operations performed by teachers and students is important for teachers' understandings of their own teaching strategies. If teachers become familiar with the five thinking

---

[3]See E. Paul Torrance and R. E. Myers, *Teaching Gifted Elementary Pupils How to Do Research.* Minneapolis, Minn.: Perceptive Publishing Co., 1962.

processes – cognition, memory, divergent production, convergent production, and evaluation – and if they acquaint their students with these abilities, more productive and evaluative thinking can be elicited in discussions.

The Aschner and Gallagher system for analysis of classroom discussion and modified versions of the system produced for inservice training programs for the gifted sponsored by the State of Illinois give details and samples of discussions analyzed according to these processes.[4] Even without the details of these methods, however, the teacher can listen to playbacks of tape recordings of social science discussions and become aware of his own questioning and discussing strategies and their effect on the responses of gifted students.

Meeker has developed another diagnostic use for the Guilford model. Her templates translate IQ responses from the Binet, WISC, or WPSSI into a profile of the student's intellectual abilities. This method provides diagnostic techniques for school psychologists to evaluate the strengths and weaknesses of children.[5] Educators sometimes expect children with exceptionally high IQs to be bright in mathematics as well as in social science; in art as well as language arts; in social behavior as well as in verbal behavior. The assumption that gifted children have equally distributed abilities in all content areas is often grossly in error. Gifted children, as well as other children with definite imbalances in abilities, may have problems reflected in their irregular profiles of abilities.

Individual Differences

Sometimes children who have discrepancies among their abilities, even though these children attain extremely high IQ scores, experience conflict because they cannot understand why one kind of task is so much more difficult than another. Personality disturbances are often associated with confusions felt by the sensitive gifted child because of his discrepant abilities. Teachers inadvertently emphasize this discrepancy by their well-meaning comments that suggest to the child that he is so bright that, of course, he can do anything quite easily.

Classroom discussions of differential abilities and of the various kinds of thinking processes are good methods of helping gifted

---

[4]See Mary Jane Aschner and James J. Gallagher, "A System for Classifying Thought Processes in Context of Classroom Verbal Interaction." Urbana, Ill.: University of Illinois, 1962 (mimeographed).

[5]See Mary N. Meeker, *The SOI, op. cit.*

students better understand themselves and their ability patterns. If gifted children are to use their abilities more completely, it is important for them to gain such understandings. In fact, remarkable insights often occur.

For example, a highly gifted ten-year-old boy was once introduced to the operations of the Guilford model. He listened quietly to the examples, definitions, and discussion of these thinking processes. As the class was being dismissed, he showed the teacher a diagram of his own problem-solving model in which he described the input and output and cycling from one process to another. He had literally programmed, as if he were programming a computer, his own step-by-step sequences in problem solving. He was, in the Piagetian sense, operating at the highest level of abstraction and application. He was also thinking as a psychologist.

Hierarchical Approaches

While the approach used by Piaget is developmental, there are taxonomic approaches that describe hierarchical tasks. Both the cognitive and the affective domains of the Bloom and Krathwohl taxonomies are applicable to the social sciences. The upper levels of these taxonomies are designated as higher skills. In the cognitive domain the simpler skills are knowledge and comprehension; the more complex skills are application, analysis, synthesis, and evaluation. In the affective domain the simpler skills are receiving and responding; the more complex skills are valuing, organization, and characterization. In these hierarchies each higher level skill subsumes the preceding skills. That is, in order to do analysis one must have knowledge and be able to comprehend and apply. The affective and the cognitive domains are assumed to interact in supporting fashion as children advance along the dimensions of both hierarchies.

Lower Levels

The lower levels of the taxonomies are those associated with the minimal mastery of content materials where the learner's reaction to education is passive and acquiescent. Response is limited to comprehension and memorization. In classrooms where these minimal levels of learning are all that are required for mastery, further productive thinking and intrinsic valuing of learning are diminished. While it can be said that for no child should learning be experienced merely at minimal levels, for the gifted child such passive learning is almost deprivational.

Categories

Gifted children experience application tasks when they apply abstract principles in concrete situations, whether these abstractions

be ideas, rules of procedure, or methods. Analysis involves identification of relationships of parts to each other or of several relationships or organizational principles. Analysis is also similar to Guilford's evaluation of relationships where one relates either several units or several classes, or units to classes.

Synthesis involves the formation of a coherent whole or reorganization into a pattern or structure not previously designed. The synthesis category is considered to be the closest to creative behavior and is similar to the Guilford system in divergent and convergent production. The evaluation category of Bloom is reasonably parallel to Guilford's evaluation. The judgmental examination of validity on the basis of internal or external criteria is an important skill for the social scientist.

Affective Domain

The social science disciplines have special adaptability for the affective domain of Bloom's taxonomy. Inquiry into values is a normal procedure in social science classes. The classroom climate for inquiry into values implies willingness to reveal one's personal beliefs to the scrutiny of all and to accept the democratic process of allowing free expression and free inquiry.

The simpler levels of the affective domain, receiving and responding, are too limited for the gifted. These children should certainly go beyond the passive affective reactions to learning; they should attain the valuing level of this domain, where internalization of values begins, ranging from acceptance of a value to preference of a value and commitment. The organization level is where values become more systematic. A child should be able not only to relate a given value to other values but to begin to integrate his own value system. Characterization represents a reasonably high degree of internalization that demonstrates the extent to which a person exhibits his own consistent philosophy of life.

Intermediate-grade gifted children are able to approach the valuing and organizational levels of the affective domain. For example, if their levels of abstraction have reached Piaget's formal operations, we would expect that intermediate gifted students would be able to organize such value systems and to conceptualize their values in a philosophical manner. In terms of history, for example, the student might, after learning the basic theory, begin to develop his own theory regarding history-making processes; he might evaluate philosophical concepts of history. Not all gifted children will have established firm philosophies in which their actions are characterizations of a value system; nevertheless, these children can begin learning theory and expanding on it.

Florida Taxonomy

The Florida Taxonomy of Cognitive Behavior is another system. Still under refinement at the University of Florida, it warrants discussion because some of the descriptive categories are specifically related to the social sciences. Although the categories extend and modify Bloom and Krathwohl's major categories, the hierarchical nature of simple to complex mental processes is not the same. The categories used in the Florida taxonomy are knowledge, translation, interpretation, application, analysis, synthesis, and evaluation.

The observational criteria for each category offer excellent descriptions of objectives pertinent to social science skills. Analysis is characterized by observational criteria in that the student:

- Distinguishes fact from opinion
- Distinguishes fact from hypothesis
- Distinguishes conclusion from statements that support it
- Points out unstated assumptions
- Shows interrelationships of elements
- Points out particulars to justify conclusions
- Checks hypothesis with given information
- Distinguishes relevant from irrelevant statements
- Detects logical fallacies
- Infers purpose, point of view, thoughts, and feelings
- Recognizes bias
- Recognizes propaganda

Teacher inservice procedures that focus on higher intellectual processes as goals for gifted children should include some observation techniques. The Florida Taxonomy and the Aschner-Gallagher system (which categorizes classroom thought processes) make feedback possible for the teacher. Teachers are able to analyze by taping their own classroom interactions. In such analyses they are able to observe their own interactions with students. They become more aware of the interaction style of individual students. They are better able to analyze students' values and expressions of value judgments as well as the quantity and quality of student responses. Tape-recorded discussions and video tapes give feedback that helps teachers to gain new insights.[6]

Phenix Categories

Another approach to logical classification of meanings in the disciplines is that of Philip Phenix. He postulates that disciplines are interrelated to these six areas:

---

[6] "Theory into Practice Through Systematic Observation," *Bulletin of the Florida Educational Research and Development Council,* IV (Spring, 1968).

1. *Symbolics* involves the disciplines concerned with ordinary language, mathematics, and nondiscursive symbolic forms.
2. *Empirics* includes physical sciences, life sciences, psychology, and social sciences.
3. *Aesthetics* is a classification of meanings in music, visual arts, arts of movement, and literature.
4. *Synnoetics* refers to disciplines of philosophy, psychology, literature, and religion in their existential aspects.
5. *Ethics* is given as the very special areas of moral and ethical concern.
6. *Synoptics,* in a comprehensive sense, encompasses history, religion, and philosophy.

The disciplines represent many overlapping concerns in the social sciences. The Phenix categories offer implicit goals for gifted children in the intermediate grades. Teaching processes should begin to involve the socially aware self of the gifted in cognitive self-understandings and in social-emotional-humanistic considerations. The aesthetic areas of meaning enhance both the self-understandings and the cognitive creativity in these children. Ethics offers an arena for theorizing or philosophizing that may be used by only a few highly gifted, but theorizing and speculating are valuable for the moderately gifted.[7]

Individual Profiles

Although many gifted children have reasonably parallel kinds of abilities in different thinking processes and in different areas of content (figural, symbolic, semantic, and behavioral), some gifted children have very discrepant profiles of different abilities. Let us assume that in the social sciences one may have children who prefer styles of thinking that are more convergent or, on the other hand, styles that are more divergent. There may be children who are extremely capable in the use of words with direct referents but who begin to have difficulty when words become more abstract.

Some children may have strengths in semantics and symbolics but deficits in the figural areas. For this reason teachers must be extremely careful in preparing a variety of means for developing social science skills in the gifted. And the intermediate grades are such an intense period of developmental transition that differentiation of expectations for individual children is vital.

---

[7]See Philip H. Phenix, *Realms of Meaning.* New York: McGraw-Hill Book Company, 1964.

Chapter 4

Creativity

To synopsize the literature on creativity for education of the gifted is not possible in this framework. Even if it were, teachers would not gain an understanding of the complex processes involved in creative productions unless they read widely the original works concerned with characteristics of creative persons, the characteristics of the creative process, the role of creative products, and the essence of creativity itself.

Creative Persons

Creative persons have been categorized by MacKinnon into three types: those who express inner states (e.g., artists, theorists, poets, novelists, and the like); those who operate on known things in the environment to produce a creative product (e.g., scientists, engineers, and the like); and those who combine these characteristics and express themselves in terms of some environmental demands (e.g., architects).[1] Several authors designate people as "interpersonal creators." Still others, concerned with creativity in children, look at characteristic indicators of creative potential.

Diversity

Teachers need to be aware that creativity may be developed in several directions. In the social sciences the models of the scientific creator, the creator who combines inner ideas and environmental demands, and especially the interpersonal creator, are appropriate. The model of the interpersonal creator may seem most closely related to behavioral science creativity because of the model's dependence on creativity in teaching.

Characteristics

Characteristics of successful creative persons have been found to have general consistency among artists, architects, writers, and scientists. These characteristics are tolerance for ambiguity, fondness for complexity, desire for an integrated whole, independence of

[1] See D. W. MacKinnon, "Personality and the Realization of Creative Potential," *American Psychologist,* XX (1965), 273-81.

judgment, flexibility, originality, and spontaneity of humor. Creative persons often resist the premature closure of problem solving; they are able to accept conflict and permit into their awareness unique, strange, and even bizarre imagery. They are open to experiencing both the inner self and the outer world. The open-mindedness allows a clutter and disorder until the person finds a higher order of integrating and reconciling principles. Although some creative persons view from a broad rather than a narrow perspective, others see only the details. In children these characteristics may be less pronounced; it remains to be seen whether they are forerunners of adult creativity or whether imagination is a better indicator.

The adult will search for new solutions and combine elements that are perhaps apparently unrelated. In his openness and his access to ideas and feelings, he is able to be more imaginative and original. Through his flexibility he tries many ideas and may persist in trying so many ideas that he does eventually find an original one. His independence in judgment is not purposefully nonconforming, but it is rather a tenacity about the validity of his own creative efforts. Children need immediate support when they evidence this kind of action.

Self-Actualization

Rogers and Maslow see creativity as one of the highest developments in self-actualization.[2] For the gifted child such ultimate self-realization is desirable, but along the way he needs frequent opportunities to realize his inner goals. This need requires a commitment on the part of the teacher who looks to ultimate development. Children must begin in the early grades to gain a sense of self-identity as originators of their own world of action. The child who can never originate an action will find responsibility foreign to his nature.

Creative Process

The beginning of the creative process is generally seen as a period of openness, search, or problem finding. This period must be planned for. Then, after deliberation or quiet thinking (incubation), insights or analyses of possibilities occur. A period of concentrated work ensues, usually resulting in an incomplete or a finished product. With the closure of the product or the tentative product, some form of evaluation might follow.

---

[2]See Carl R. Rogers, "Towards a Theory of Creativity," in *Creativity and Its Cultivation.* Edited by H. H. Anderson. New York: Harper & Row Publishers, Inc., 1959. See also A. H. Maslow, *Toward a Psychology of Being.* Princeton, N.J.: D. Van Nostrand Co., Inc., 1962.

Creative Problem Solving

Creative problem solving begins with a search for information. The search should result in alternatives or an idea and then proceed toward a solution with evaluation.

The period of openness may be the most difficult for teachers and students to tolerate. During this period ideas are unclear and ambiguous, and the teacher must be prepared for those times when nothing is forthcoming. The process of search is uncertain and risky, and students need to know this fact. It is difficult for children who are unaccustomed to delayed closure to postpone the finding of answers. This open period will often involve times when no answers appear. Those children who do not feel free enough to let their fantasies roam in order to come up with new ideas and who misbehave or prefer to work on structured assignments may be those most in need of having their thinking freed from time limits.

The Guilford "Structure of Intellect" model has factorially separated divergent-thinking components. Some of them are fluency, flexibility, originality, and elaboration. These factors are some of the major abilities found in creative persons, yet fluency, associated with the open stage of the creative process, is seldom experienced in many classrooms.

Divergent thinking can be increased when deliberate and planned efforts are made to expand fluency, develop flexibility, allow originality, and sponsor elaboration. E. Paul Torrance, with his associates, has focused his efforts on developing creativity in elementary school children. Some of the Torrance materials for developing creative behavior are listed in the "Selected References" section of this publication. Social science teachers will find his pamphlet *Teaching Gifted Elementary Pupils How to Do Research* of special interest in that the research experience reported is historiographical in nature.[3]

Teacher Strategies

Torrance has been most fluent in developing ways in which teachers can provide for creative experiences. These methods are described as follows:

- Provide opportunities for creative behavior.
- Develop skills for creative learning – inquiry, creative research, creative problem solving.
- Provide for continuity for creative development.
- Establish a creative relationship with children.

---

[3]See E. Paul Torrance and R. E. Myers, *op. cit.*

- Offset many blocks to creativity (e.g., social forces).
- Reward creative achievement.

Torrance also suggests five principles for rewarding creativity as follows:

- Treat questions with respect.
- Treat imaginative ideas with respect.
- Show pupils that their ideas have value.
- Have pupils occasionally do something "for practice" without the threat of evaluation.
- Tie in evaluation with causes and consequences.

A teacher who is naturally creative does many of these things spontaneously. The teacher who is by nature uncreative can work on tasks to encourage in gifted children those capabilities the teacher feels least secure about. These tasks include (1) deemphasis of uniform conduct, curriculum, and routine; (2) establishment of an open, informal, somewhat permissive, yet responsible environment; (3) emphasis on individual pupil objectives in line with the pupil's uniqueness; (4) provision of activities encouraging decision making and initiative in pupils; and (5) instruction of pupils to increase awareness of their own feelings, insights, and aesthetic sensitivities.

Creativity theory can be applied to the social sciences by using the process of inquiry. Inquiry techniques can be viewed from the logical, psychological, and normative points of view. Study is thus focused on creative or divergent dimensions. Primarily designated for secondary school children, these dimensions are also applicable for use with gifted intermediate-grade students.

Frank E. Williams' model of teachers' strategies for productive divergent thinking also has value for the gifted. The Williams model is composed of the dimensions of (1) subject-matter content; (2) classroom teaching strategy; and (3) productive divergent-thinking processes.

Williams lists as the productive divergent-thinking processes the components of fluent thinking, flexible thinking, original thinking, elaborative thinking, willingness to take risks, preference for complexity, and curiosity. Brief titles of the teaching strategies include the following:

1. Paradoxes
2. Analogies
3. Sense of deficiencies
4. Thought of possibles
5. Provocative questions
6. Attribute listing
7. Exploration of mystery of things
8. Reinforcement of originality
9. Examples of change
10. Organized random search
11. Examples of habit
12. Skills of search
13. Tolerance for ambiguity
14. Intuitive expression

15. Process of invention
16. Adjustment to development
17. Study of creative people
18. Interaction with past knowledge
19. Evaluation of situations
20. Perception of surprise
21. Creative reading skill
22. Creative listening skill
23. Visualization skill

Each idea appears by number in full description and use. The book is extemely valuable for enhancing creative experiences in children.[4]

Individual Differences

Creative personalities vary considerably along a continuum of openness at one end to rigid structure at the other end. Somewhere along this continuum students and teachers disperse themselves variously from styles of rigid conformity to convergent approaches; to clinging to the security of the knowledge of that which is known and understood; to tentative efforts at creativity; to rational and productive creativity; and, rarely, to wild and unharnessed flights of imagination.

If one were to assume that the peak performance on this continuum is at the point where productive creativity lies, then the value judgment being made is unsafe, for we are unable to predict the end goal in adulthood of any of these points. Those who are struggling from the rigid end of the continuum can be helped to be more open and to take more risks. Children whose imagination seems to be composed of bizarre fantasies unrelated to reality can be guided to occasional constructive and rational implementations of what might be truly original ideas.

---

[4]See Frank E. Williams, *Classroom IDEAS for Developing Productive Divergent Thinking.* St. Paul, Minn.: Macalester Creativity Project, Macalester College, n.d.

Chapter 5

Development of Potential

A major assumption in the teaching of gifted children is that self-actualization of those who have special gifts and talents is important not only to the gifted children but to the nation as a whole. Destinies of the gifted are inextricably aligned with the destiny of the nation and the world. Yet the creatively gifted have for many decades been some of our most unhappy students. They have been dissatisfied with the system and have been impatient to be freed. We have no knowledge of what the potential achievement levels of these children might be were they freed and allowed to exercise their minds and multiple abilities more fully before leaving school

Meaning of Development

The development of full potential does not imply that educators are going to pressure the gifted with statements such as these: "You are very bright. Why don't you do better in my class? You can do better. Here, report back when you have a product." Gifted children do need knowledge, and they need skills now for which they are forced to wait. The gifted need freedom to explore within structured environments.

Educators must seriously involve themselves in new strategies for the productive and creative development of their gifted students and must give of their time to accomplish the basic groundwork for productive growth, which occurs when the gifted are challenged and made happy in secure environments! A secure environment is provided by a knowledgeable teacher who is child-oriented. A secure environment is a school where materials are available and where there is freedom to work with them.

Contribution of Social Sciences

The social sciences offer exceptional opportunities for the growth and development of gifted students. First, the strategies of the social sciences offer exemplary samples of the human thinking procedures. Models for behavioral science investigations may be models under which many gifted individuals will examine questions throughout their lives. Second, the social sciences accent opportunities to give

students continuing experiences in active thinking processes in conjunction with the accumulated knowledge of the past. Gifted students may involve a greater variety of their thinking abilities through the social sciences, particularly the productive abilities in logical thinking, creative thinking, and critical thinking. Third, behavioral sciences focus on the understanding of oneself and of humanity.

The social sciences are thus especially fitted to understandings of interpersonal relationships, intercultural relationships, and international relationships. Fourth, social science disciplines have a breadth of interdisciplinary relationships among themselves. Social sciences may be used as the synthesizers for a multidisciplinary approach.

For gifted students in the intermediate grades, this period of learning may be crucial to their creative development. It is essential that they begin to understand themselves as potentially productive and possessed of leadership and humanitarian responsibilities.

Primary generalizations for the gifted in the social sciences are those concerning "creative man." In the social sciences gifted children can perceive of themselves as productive thinkers and as persons having responsibilities to humanity. These understandings are easily coordinated with the general social science education framework, where the gifted can experience an expanded depth and breadth in those curriculum concepts considered to be universal to the study of man.

The emphasis in this publication on the individuality of each gifted child is enhanced through this image of the creative man as a model. At the same time, because of the normative features of the study of social sciences, gifted students would begin in the intermediate grades to derive philosophical perspectives about their individual selves and their relationships to society.

Selected References

Aschner, Mary Jane, and James J. Gallagher. "A System for Classifying Thought Processes in Context of Classroom Verbal Interaction." Urbana, Ill.: University of Illinois, 1962 (mimeographed).

Bachtold, Louise M. *Counseling Instructional Programs for Intellectually Gifted Students.* Sacramento, Calif.: California State Department of Education, 1966.

Barron, Frank. *Creativity and Psychological Health.* Princeton, N.J.: D. Van Nostrand Co., Inc., 1963.

Bish, Charles E., and Mary Jane Aschner. *Productive Thinking in Education.* Washington, D.C.: National Education Association, 1968.

Bruch, Catherine B. "Cognitive Characteristics of Effectively Creative Teachers." Ed. D. dissertation, University of California, Los Angeles, 1967.

Bruner, Jerome S. *Inventing the Western World.* Cambridge, Mass.: Educational Development Center, Social Studies Curriculum Program, 1968.

Bruner, Jerome S. *Man: A Course of Study.* Cambridge, Mass.: Educational Development Center, Social Studies Curriculum Program, 1968.

Bruner, Jerome S. *Toward a Theory of Instruction.* Cambridge, Mass.: Belknap Press, 1966.

Clements, H. Millard, William R. Fiedler, and B. Robert Tabachnik. *Social Study: Inquiry in Elementary Classrooms.* Indianapolis: Bobbs-Merrill Company, Inc., 1966.

Effective Thinking in the Social Studies. Edited by Jean Fair and Fannie R. Shaftel. Washington, D.C.: National Education Association, 1967.

Engle, Shirley H. "Objectives of the Social Studies," in *New Challenges in the Social Studies.* Edited by Byron G. Massialas and Frederick Smith. Belmont, Calif.: Wadsworth Publishing Company, 1965.

Guilford, J. P. *Intelligence, Creativity and Their Educational Implications.* San Diego, Calif.: Robert R. Knapp, 1968.

Guilford, J. P. *The Nature of Human Intelligence.* New York: McGraw-Hill Book Company, 1967.

Guilford, J. P., and P. R. Merrifield. *The Structure of Intellect Model: Its Uses and Implications.* Reports from the Psychological Laboratory, No. 24. Los Angeles: University of Southern California, 1960.

Hanna, Paul R. "Revising the Social Studies: What is Needed," *Social Education,* XXVII (1963), 190-96.

Krathwohl, David R., Benjamin S. Bloom, and Bertram B. Masia. *Taxonomy of Educational Objectives: The Classification of Educational Goals – Handbook II: Affective Domain.* New York: David McKay Company, Inc., 1956.

Lovell, Kenneth. An address to the International Conference on Piaget. Monterey, Calif.: California Test Bureau, 1969.

MacKinnon, D. W. "Personality and the Realization of Creative Potential," *American Psychologist,* XX (1965), 273-81.

Maslow, A. H. *Toward a Psychology of Being.* Princeton, N.J.: D. Van Nostrand Co., Inc., 1962.

Massialas, Byron G., and Benjamin C. Cox. *Inquiry in Social Studies.* New York: McGraw-Hill Book Company, 1966.

Massialas, Byron G., and Andreas M. Kazamias. *Crucial Issues in the Teaching of Social Studies.* Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1964.

Massialas, Byron G., and Frederick Smith. *New Challenges in the Social Studies.* Belmont, Calif.: Wadsworth Publishing Company, 1965.

Massialas, Byron G., and Jack Zevin. *Creative Encounters in the Classroom.* New York: John Wiley & Sons, Inc., 1967.

Meeker, Mary N. "Differential Syndromes of Giftedness," *Journal of Special Education,* II (1968), 185-94.

Meeker, Mary N. *The SOI: Its Interpretation and Use.* Columbus, Ohio: Charles E. Merrill Publishing Company, 1969.

Myers, R. E., and E. Paul Torrance. "Can Teachers Encourage Creative Thinking?" *Education Leadership,* XIX (December, 1961), 156-59.

Osborne, Alex E. *Applied Imagination.* New York: Charles Scribner's Sons, 1963.

Phenix, Philip H. *Realms of Meaning.* New York: McGraw-Hill Book Company, 1964.

Price, Roy A., Gerald R. Smith, and Warren L. Hickman. *Major Concepts for the Social Studies.* Syracuse, N.Y.: The Social Studies Curriculum Center, Syracuse University, 1965.

Rogers, Carl R. "Towards a Theory of Creativity," in *Creativity and Its Cultivation.* Edited by H. H. Anderson. New York: Harper & Row Publishers, Inc., 1959.

Scientific Creativity. Edited by C. W. Taylor and F. Barron. New York: John Wiley & Sons, Inc., 1963.

Scriven, Michael. "The Structure of the Social Studies," in *The Structure of Knowledge and the Curriculum.* Edited by G. W. Ford and Lawrence Pugno. Chicago: Rand McNally and Company, 1964.

[Proposed] *Social Sciences Education Framework for California Public Schools: Kindergarten and Grades One Through Twelve.* A report of the Statewide Social Sciences Study Committee to the State Curriculum Commission and the California State Board of Education. Sacramento, Calif.: California State Board of Education, 1968.

Taba, Helda, and James L. Hills. *Teacher Handbook for Contra Costa Social Studies.* San Francisco: San Francisco State College, 1965.

Taxonomy of Educational Objectives: The Classification of Educational Goals – Handbook I: Cognitive Domain. Edited by Benjamin S. Bloom. New York: David McKay Company, Inc., 1956.

"Theory into Practice Through Systematic Observation." *Bulletin of the Florida Educational Research and Development Council,* IV (Spring, 1968).

Torrance, E. Paul. *Creativity: What Research Says to the Teacher.* Washington, D.C.: National Education Association, 1963.

Torrance, E. Paul. *Gifted Children in the Classroom.* New York: Macmillan Company, 1965.

Torrance, E. Paul. *Guiding Creative Talent.* Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1962.

Torrance, E. Paul. *Rewarding Creative Behavior.* Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965.

Torrance, E. Paul, and B. F. Cunningham. *Imagi/Craft Productions: Programmed Experiences in Creative Thinking.* Boston: Ginn & Company, 1967.

Torrance, E. Paul, and R. E. Myers. *Ideabooks: Invitations to Speaking and Writing Creatively.* Boston: Ginn & Company, 1967.

Torrance, E. Paul, and R. E. Myers. *Teaching Gifted Elementary Pupils How to Do Research.* Minneapolis: Perceptive Publishing Co., 1962.

Williams, Frank E. *Classroom IDEAS for Developing Productive Divergent Thinking.* St. Paul, Minn.: Macalester Creativity Project, Macalester College, n.d.

Williams, Frank E. "Workshops on the Use and Adaptation of New Media for Developing Creativity." Final Report, Project No. 6-1619. Washington, D.C.: U.S. Office of Health, Education, and Welfare, 1968.

Williams, Frank E., and Robert F. Eberle. *Content-Process-Practice: Creative Production in the Classroom.* Edwardsville, Ill.: Creative Concepts Unlimited, 1968.

Se7-188 (1661) 77304 – 300 1-71 1M